

**NWIFCA Technical, Science and Byelaw
Sub-Committee**

11 December 2012: 2.00.p.m.

**AGENDA
ITEM NO.
5**

**PROPOSALS FOR FURTHER COCKLE TRANSPLANTATION WORK AT
(a) MARSHSIDE, SOUTHPORT AND (b) MORECAMBE BAY.**

Recommendations

- 1. That the TSB approve the proposal to proceed with a further trial of cockle transplantation on the Penfold Channel in January following the closure of the commercial fishery.**
 - 2. That the TSB approve the proposal to proceed with a trial of transplanting cockle spat from the Penfold Channel to beds in Morecambe Bay (Leven Island / Flookburgh and Aldingham / Newbiggin) and Ravensglass.**
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- 1. Details**
 - 1.1 A trial to assess the feasibility and effects of transplanting small cockles from densely populated areas to more sparsely populated areas within the intertidal zone off Lytham St Annes was approved by the NWIFCA in September 2011.
 - 1.2 On 2nd December 2011 approximately 3 tonnes of cockles were gathered by dry tractor dredge from the donor area and relayed in a 1 ha area by specially designed transplanter. On 28th February a repeat survey of the donor area (dredged and un-dredged) and the relay area was undertaken.
 - 1.3 A report was tabled at the June 2012 TSB meeting providing detail on the trial. The equipment and machinery performed efficiently and breakage rates of transplanted cockle were low. Mortality rates for the un-dredged donor area were higher than for the dredged area. Mortality rates for the transplanted cockle was lower than either the dredged or un-dredged donor area.
 - 1.4 The Authority approved further transplantation trials when stocks allow.
 - 1.5 The Meadows family invested around £36,000 into the trial. The money went into the purchase of materials to construct the machinery that was used and the purchase of a unimog and tractor for the trial. They have had no return on this investment to date.
 - 1.6 Cockle surveys of the Ribble Estuary were carried out in early September and covered about 80% of the cockle beds on Foulnaze bank and other parts of the estuary, including the Penfold Channel. There has been a significant spatfall of juvenile cockle across the entire estuary in summer 2012. Densities in some areas were up to 10,000/m² of late settled 'lentil-size' spat (Figure 1). Spat from an assumed earlier settlement had grown fast reaching an average length of 11.33mm.
 - 1.7 Fishery Officers have witnessed dense spatfall in this area in many years and report that it is common for 90% to suffer natural mortality over winter by mid-February.

- 1.8 Operators and Fishery Officers consider that there are suitable and more sheltered areas around the Penfold Channel to which this spat stock could be transplanted in order to improve the possibilities of its survival.
- 1.9 There has been much interest from fisher stakeholders, IFCOs and science officers to trial transplantation to other cockle beds within the District – namely Morecambe Bay – to assess the potential for stock enhancement / cultivation and thus support fisheries on these beds. If successful, transplanted cockle would also become additional food resource for SPA birds in these areas. The Morecambe Bay Fishery Order Management Plan includes scope for developing cockle fisheries in this way.
- 1.10 One of the operators with an interest in the Morecambe Bay and Ravensglass transplantation proposal has applied to Furness Enterprises for funding of £20,000 to support the project of transplanting to Morecambe Bay. If successful this money would be paid to the Meadows family to offset their outlay as described above (1.5).
- 1.11 Officers are requesting approval from the TSB to proceed with a further trial of (a) transplanting cockle spat within the Penfold Channel (unfunded) and (b) transplanting cockle spat from the Penfold Channel to Morecambe Bay and Ravensglass (potential funding) in January following the closure of the commercial fishery on the Penfold Channel.

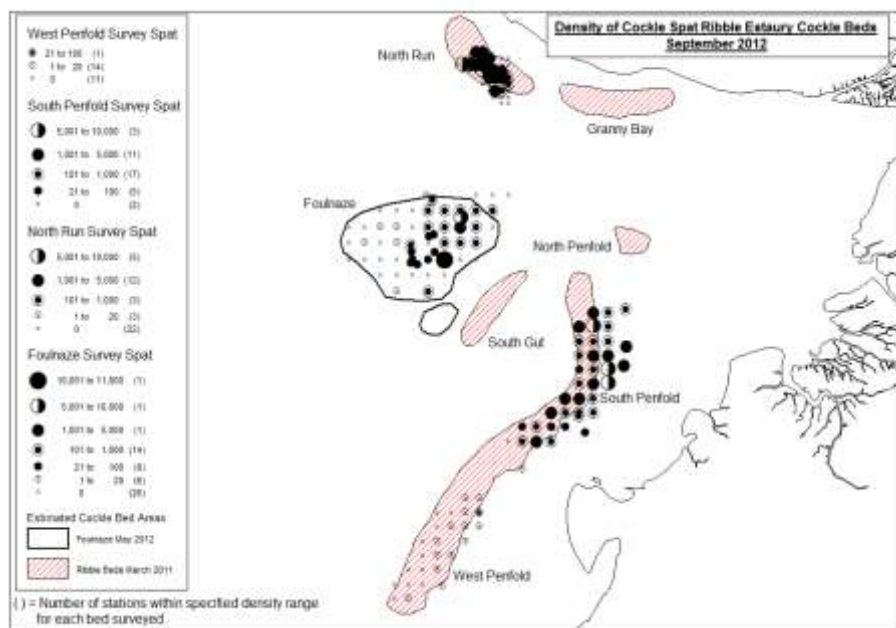


Fig. 1. Map of density of cockle spat per m² at sampled stations
Ribble Estuary Cockle Beds September 2012

- 1.12 Officers have been meeting with Natural England to discuss the proposals which are subject to full Habitats Regulations Assessments.

2 Details

A Transplantation within the Penfold Channel

- 2.1a An exact location for the donor area needs to be identified when the ground allows but is located in the northern sector of the North Penfold bed. The volume of spat to be transplanted will be between 5 – 10 tonnes. IFCO Brown and the operators identified two 'runs' that they

thought would make good areas to relay to (Figure 2) but this will be confirmed nearer the time as there is the potential for the beds to change during December. The coordinates of the identified areas are as follows:

Option 1 – 1. 53°41'24.5" N 03°01'41.1" W
2. 53°41'14.7" N 03°02'05.5" W

Option 2 – 1. 53°41'01.8" N 03°02'01.5" W
2. 53°40'59.7" N 03°02'04.5" W

Option one (located on the north side of the Penfold channel) and option two (located on the south side of the Penfold Channel) are considered to be suitable sites. Both locations contain no spat and by the end of the month the majority of cockles that are present there will have been removed by the hand rakers. Both locations are proven habitat for cockles that will have very few cockles by the time relaying commences.

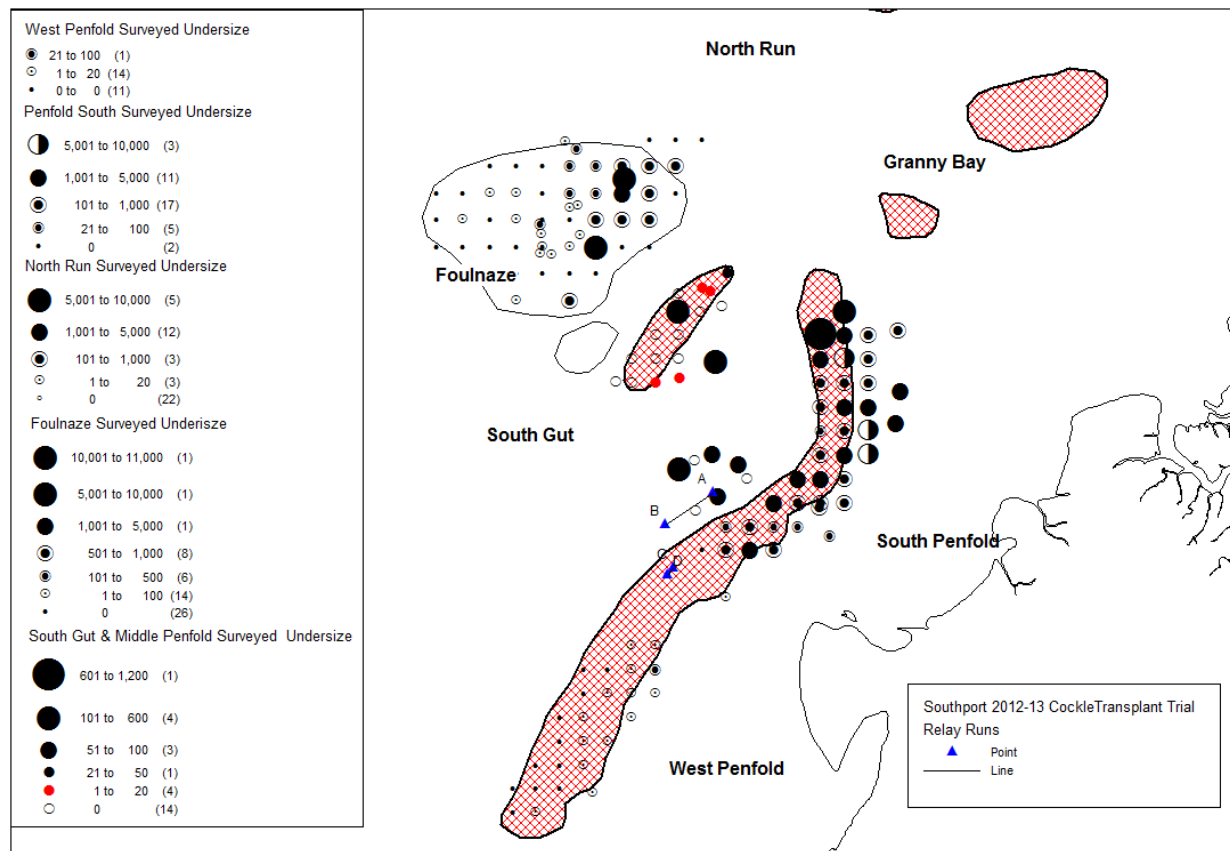


Fig. 2. Map of proposed relay runs (A – B, C – D) showing density of cockle spat per m² at sampled stations Ribble Estuary Cockle Beds September 2012

2.2a There will be no need for alteration to the re-seeding machine or harvester. The mesh size on the harvester will allow the smaller spat to fall through which is what is required. The trial is to thin the donor area to give a better chance of survival for the spat left and to relay retained cockle spat in areas proven to support adult cockles. Before and after surveys will be carried out to assess original and post-transplant densities at donor, relay and control areas.

- 2.3a The spat is smaller and therefore more soft shelled than that transplanted in 2011. It will therefore be necessary to take more time over the movement of the cockle and it is proposed that up to seven tides will be needed to complete the work.
- 2.4a Officers and operators agree that a trial of this nature would provide useful information on the management of cockle fisheries and the ability to 'manipulate' stocks within an estuary to create sustainable cockle fisheries. Removing the uncertainty of whether cockle will seed within the estuary will be beneficial for the bird populations that use the estuary as a feeding ground as well as commercial fishers.

B Transplantation from the Penfold Channel to Morecambe Bay and Ravensglass

- 2.5b Officers are in agreement with the principal of this proposal and the benefits of funding to assist operators in continuation of trials in the future. North Morecambe Bay Fishermen's Association has been informed of the proposal and is supportive of the trial. Cockles that persist from the relay trials in the Bay will become part of the public fishery. Ravensglass (Figure 3) is a private fishery and cockles relayed here will not be part of the public fishery. The area is leased by one operator who will have sole rights over any cockles that persist from the relaying trial. The operator will be required to undertake before and after surveys as per the main trial.

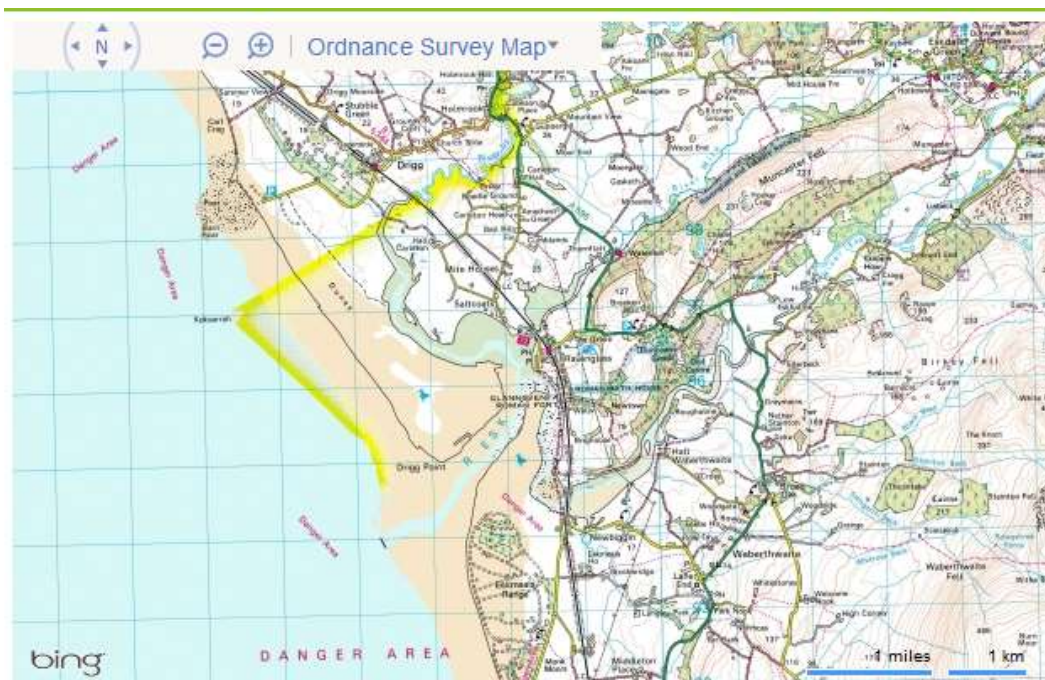


Fig. 3. Map illustrating position of Ravensglass cockle relaying area (OS map reproduced from Land Registry website)

- 2.6b Officers recognise that this proposal may potentially involve more issues than A. These will include:
- Reduction of food resource for birds in Ribble – increase for birds in Morecambe Bay – what are the issues here? Need to analyse data of bird numbers over recent years and usage of Morecambe Bay;

- Possibility of transfer of non-native species;
- Biosecurity - investigating any potential for transfer of infectious shellfish disease or parasites, especially in view of the close proximity of the oyster frames to Newbiggin;
- Identification of suitable relay areas within Morecambe Bay. Suggestion of Aldingham / Newbiggin and Leven Island / Flookburgh due to necessity of utilising north Morecambe Bay beds to secure funding (Figure 4).

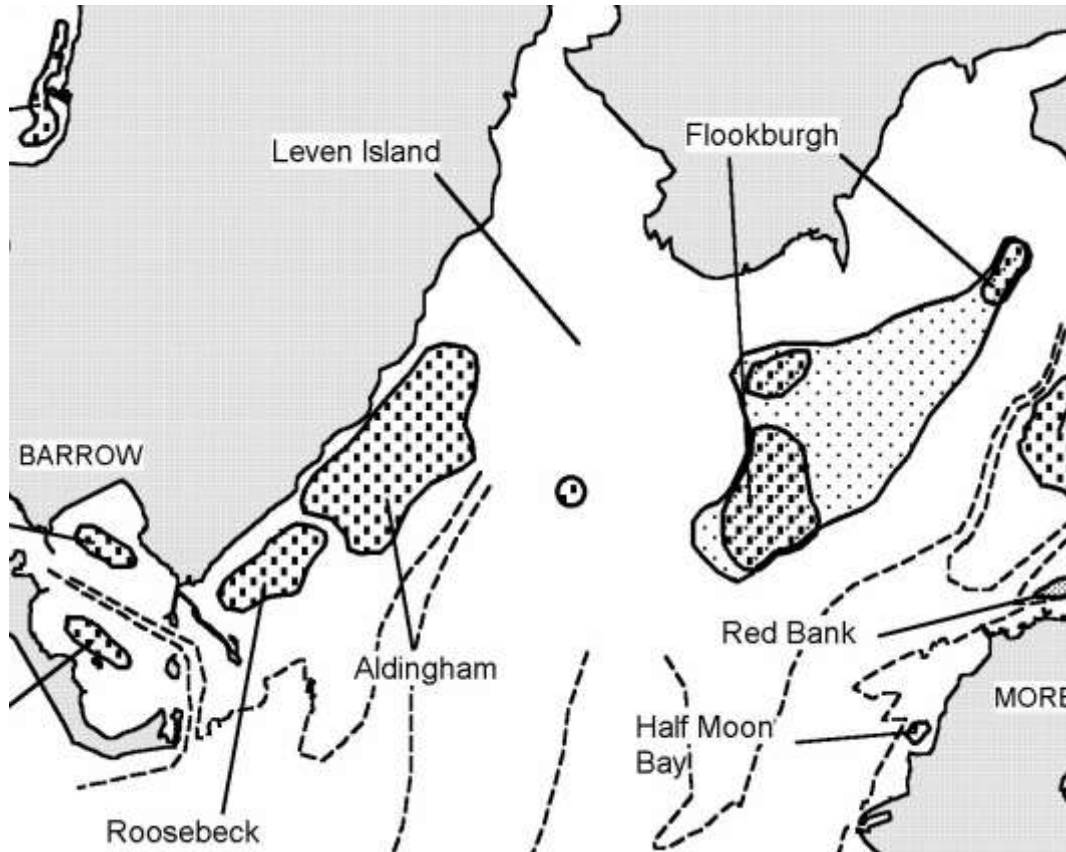


Fig. 4. Illustration of position of Aldingham / Newbiggin and Leven Island / Flookburgh cockle beds in north Morecambe Bay.

2.7b There has been no significant spat settlement on any Morecambe Bay cockle beds during 2012. Densities of size cockle are low. Survey results of cockle stocks from the named beds are given below:

i) Aldingham and Newbiggin – surveyed on 10.11.12

26 stations surveyed. This was a relatively targeted and biased survey where specific cockle ‘territory’ stations were chosen on site, and more intense sampling occurred in areas where cockles were being found. Therefore data should represent highest possible densities.

The reason for this approach was that local fishers and the IFCO had reported finds of cockles and were requesting that this bed be opened for cramming. Stations were further west from usual survey stations as this was where the cockles had been reported.

39% (mean) of cockles sampled were undersize (sd = 33). Mean density for total adults found from samples was – 13 per m² (sd = 9). Mean density for size cockles found from samples was – 8 per m² (sd = 7). Mean density for undersize cockles (not including spat) found from samples was – 5 per m² (sd = 4). There was evidence of a minor spatfall for 2012 with a mean density of 25 per m² (sd = 18).

ii) Flookburgh – surveyed on 03.07.12

29 stations surveyed. 53% (mean) of cockles sampled were undersize. Although there was a representation of cockles from year classes 2009 – 2012, densities were low. Mean density for total adults found from samples was – 10 per m². Mean density for size cockles found from samples was – 4 per m². Mean density for undersize cockles found from samples was – 6 per m²

iii) Leven Island – surveyed 03.07.12

20 stations surveyed. 43% (mean) of cockles sampled were undersize. Although there was a representation of cockles from year classes 2009 – 2012, densities were low. There was a sprinkling of spat settlement but it was very patchy and low density. Mean density for total adults found from samples was – 10 per m². Mean density for size cockles found from samples was – 5 per m². Mean density for undersize cockles found from samples was – 7 per m².

- 2.8b Donor areas will be determined just prior to relaying as beds are likely to change in nature during December. It is proposed to relay 5 tonnes of spat on each of the areas. Before and after surveys will be carried out to assess original and post-transplant densities at donor, relay and control areas.
- 2.9b It will be necessary to harvest the spat from Southport on one tide, keep it overnight and relay it into Morecambe Bay on following tide. It is anticipated that up to 14 tides in total will be needed to complete the work.
- 2.10b There are no known records of any disease, parasites or invasive non-native species on the cockle beds in Southport. However Cefas have been contacted for the most up-to-date information and advice on any preventative action that needs to be taken regarding biosecurity measures.

MANDY KNOTT
Scientific and Morecambe Bay Fishery Order Officer
27th November 2012